

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte ROBERT J. DUFFIN JR.

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Appeal No. 1996-0708  
Application No. 08/241,888<sup>1</sup>

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ON BRIEF

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Before KIMLIN, HANLON, and PAK, Administrative Patent Judges.

PAK, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final rejection of claims 1 through 30 which are all of the claims pending in the application.

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<sup>1</sup> Application for patent filed May 12, 1994.

Claims 1, 10, 14 and 23 are representative of the subject matter on appeal and read as follows:

1. A process for producing a flame proofing or fire retardant concentrate comprises the step of dehydrating a mixture of hydrated sodium antimonate and at least one polymer in a vented or vacuum apparatus at a temperature above 200°C and below 500°.

10. A process for flame retarding a polymer or resin composition with the steps: (1) dehydrating a mixture of an alkyl tetrabromophthalate and/or tribromophthalate and brominated polystyrene at a temperature between 200°C and 300°C; (2) combining the dehydrated mixture with polymer or resin in an extruder; and (3) dispersing by means of an extruder to produce a flame-retarded composition.

14. A process for flame proofing a glass-filled polyethylene terephthalate or polybutylene terphthalate compositions with steps: (1) dehydrating a mixture of an alkyl tetrabromophthalate and/or tribormophthalate [sic, tribromophthalate] and hydrated sodium antimonate and brominated polystyrene at a temperature between 200° and 300°C; (2) combining the dehydrated mixture with polyethylene terephthalate or polybutylene terephthalate and glass fiber; and (3) blending the ingredients to prepare a flame retarded terephthalate composition.

23. A process for producing a flame proofing or fire retardant pellet comprising the steps: (1) mixing 10 to 90 parts by weight sodium antimonate with a water content of about 2.9% with 10 to 90 parts by weight carrier polymer and 0.5 to 1.5 parts by weight antioxidant to prepare a concentrate precursor; (2) processing the concentrate precursor in a vented or vacuum apparatus at a temperature between 200°C and 500°C to remove the majority of the water from the concentrate precursor within at least 30 minutes; and

(3) pelletizing the dehydrated concentrate precursor to produce a pellet with a moisture content below 0.2% by weight.

The prior art references of record relied upon by the examiner are:

Touval 1975	3,892,667	Jul. 1,
Sandler 1981	4,298,517	Nov. 3,
Breitenfellner et al. 1991 (Breitenfellner)	5,034,439	Jul. 23,

The prior art references at page 5 of the specification newly relied upon by the Board are:

Miyashita et al. 1988 (Miyashita)	4,786,663	Nov. 22,
Hanabusa 1993	5,258,434	Nov. 2,

(Filed Jan. 22, 1987)

Claims 1 through 30 stand rejected under 35 U.S.C. § 103 as unpatentable over the combined disclosures of Touval, Breitenfellner and Sandler.

In reaching our decision in this appeal, we have reviewed the specification, claims and prior art, including all of the arguments advanced by both the examiner and appellants in

support of their respective positions. As a consequence of this review, we make the determinations which follow.

As evidence of obviousness of the claimed subject matter under 35 U.S.C. § 103, the examiner relies on the combined teachings of Touval, Breitenfellner and Sandler. The examiner relies on Touval to demonstrate that dehydrating a mixture of a hydrated sodium antimonate and a certain polymer during the production of a flame proofing or fire retardant would have been obvious to one of ordinary skill in the art. See Answer, page 5-8. The examiner then relies on Breitenfellner and Sandler to establish that the use of the claimed specific polymers and other ingredients in the process of Touval would have been obvious to one of ordinary skill in the art. See Answer, pages 6-8. However, as indicated by appellants at page 4 of the Reply Brief, Touval does not teach dehydrating a mixture of a hydrated sodium antimonate and at least one polymer. Touval teaches drying the hydrated sodium antimonate prior to incorporating it to a polymer formulation for the production of a flame proofing or fire retardant in an extruder. See, e.g., column 6, line 3, column 7, lines 50-53. Although the examiner appears to argue that Touval inherently

dehydrates sodium antimonate during its processing in an extruder with a polymer, see Answer, page 9, the examiner has not established that the dried sodium antimonate described in Touval is necessarily in hydrated form. This deficiency is not remedied by either Sandler or Breitenfellner. Accordingly, we are constrained to reverse the examiner's decision rejecting claims 1 through 30 under 35 U.S.C. § 103.

#### OTHER ISSUES

Upon return of this application to the examiner, the examiner should consider the patentability of the claimed invention in view of the teachings in Hanabusa and Miyashita. Hanabusa, for example, discloses homogeneously mixing a mixture in a V-blender and then melt-extruding the mixture in a twin-screw extruder having a barrel temperature of 260°C. See columns 9 and 10. The mixture includes polybutylene terephthalate, a halogenated phenoxy compound, a hydrated sodium antimonate and a fatty acid ester. See Tables 1-3 at columns 9 and 10. The amount of water in the hydrated sodium antimonate is expressed in terms of mol. See Table 1. Since Hanabusa describes heating a mixture containing a hydrated sodium antimonate and a polymer in the environment recited in

claim 1, the hydrated sodium antimonate described in Hanabusa appears to be inherently dehydrated in the presence of a polymer as required by claim 1. ***See In re Best***, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977). We have not reviewed the applicability of Hanabusa on the remaining pending claims in the present application. The examiner is advised to compare the mixtures described in Hanabusa with the claimed mixtures to determine whether Hanabusa also affects the patentability of the remaining claims in the present application. Similarly, Miyashita describes mixing heat-treated or not-heat-treated sodium antimonates having different hygroscopicities (reflect different moisture contents) with a thermoplastic polyester (a polymer), and organic and inorganic reinforcing agents in a ribbon blender and extruder at a temperature of 240°C to 290°C. See column 4 together with column 5, Table 1. Since a hydrated sodium antimonate and a polymer are mixed at a temperature within the range recited in claim 1, it appears that the dehydrating step recited in claim 1 is also inherent in the process described in Miyashita. We have not reviewed the effect of Miyashita on the remaining claims pending in the present application. The

examiner is advised to compare other claimed features with the disclosure of Miyashita to determine whether Miyashita also affects the patentability of the remaining claims in the present application.

In view of the foregoing, we reverse the examiner's decision rejecting claims 1-30 over the combined teachings of Touval, Breitenfellner and Sandler and remand the application to the

examiner for appropriate action in accordance with the above  
stated instructions.

REVERSED/REMAND

EDWARD C. KIMLIN	)	
Administrative Patent Judge	)	
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	)	BOARD OF PATENT
ADRIENE LEPIANE HANLON	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
	)	
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CHUNG K. PAK	)	
Administrative Patent Judge	)	

CKP/jlb



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JAMES K. LUCHS  
ELF ATOCHEM NORTH AMERICA INC.  
PATENT DEPARTMENT  
2000 MARKET STREET, 26TH FLOOR  
PHILADELPHIA, PA 19103